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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,858	12/29/2004	Hitoshi Hayashi	5259-000043/NP	9302
27573 7590 02/27/2009 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303				
EXAMINER LU, ZHIYU				
ART UNIT 2618		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/519,858

Applicant(s)

HAYASHI ET AL.

Examiner

ZHIYU LU

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 5, 7-9 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 7-9 and 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-846)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

DETAILED ACTION

*Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/22/2008 has been entered.

*Response to Arguments*

2. Applicant's arguments with respect to claims 1-2 and 4-5 have been considered but are moot in view of the new ground(s) of rejection.

3. Applicant's arguments filed 11/25/2008 have been fully considered but they are not persuasive.

Regarding amended claims 7-9, the amended limitations relate usage of the apparatus, which are not given patentable weight while the prior art satisfies claimed structural limitations. Thus, rejections to claims 7-9 are proper and maintained.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shanks et al. (US2002/0152044).

Regarding claim 7, Shanks et al. anticipate a noncontact RF ID system, comprising:

a reader (104 of Fig. 1) for transmitting data information that include data and a clock (paragraphs 0392); and

a transponder which receives the data information from the reader comprising an antenna (1010a-b of Fig. 10) for receiving the signal from a reader, a DC power detecting circuit, a signal detecting circuit (paragraphs 0127-0128), an input amplifier (paragraph 0367), a clock generating device (1026 of Fig. 10), a demodulator (1021 of Fig. 10, paragraph 0144), a control logic circuit (1024 of Fig. 10), and a memory (1020 of Fig. 10), wherein

the DC power detecting circuit comprising a power accumulating capacitor that activates the transponder when a signal is received (paragraphs 0127-0128);

the clock generating device that generates an internal clock such that the state transition of the internal clock is generated in synchronism with the timing of the rise of the modulating signal (paragraphs 0391-0393); and

the control logic circuit that operates in synchronism with the state transition of the clock generated by the clock generating device (paragraphs 0391-0393), wherein the noncontact RF ID system communicates

a data sequence having a first waveform which corresponds to one of codes "0" or "1" and which has a length of time  $T$  (Fig. 3),

a data sequence having a second waveform which corresponds to one of codes "0" or "1" opposite to the first waveform and which has a length of time  $T$  (Fig. 4), and

a data sequence having a third waveform which corresponds to null (Fig. 5).

But, Shanks et al. do not expressly disclose the data sequence having a third waveform which corresponds to  $m$  ( $m$  is a natural number equal to or greater than 2) codes that are the same as the codes of the second waveform and which has a length of time  $mT$ , and wherein the first waveform with 50% duty ratio is in a low level state at a starting point, is in a high level state at an end point and rises only at a position of  $T/2$ , the second waveform with 50% duty ratio is in a high level state at a starting point, is in a low level state at an end point and rises only at a position of  $T/2$ , and the third waveform with 50% duty ratio is in a high level state at a starting point, is in a low level state at an end point and rises only at a total of  $m$  positions of  $T/2 + nT$  ( $n=0, \dots, m-1$ ).

However, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Regarding claim 8, Shanks et al. teach a transmitter in a noncontact RFID system as explained in response to claim 7 above.

Regarding claim 9, Shanks et al. teach a receiver in a noncontact RFID system as explained in response to claim 7 above.

Regarding claim 11, Shanks et al. teach a noncontact RFID system as explained in response to claim 7 above.

Regarding claim 12, Shanks et al. teach a transmitter in a noncontact RFID system as explained in response to claim 7 above.

Regarding claim 13, Shanks et al. teach a receiver in a noncontact RFID system as explained in response to claim 7 above.

5. Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng (US2003/0011474) in view of Kem et al. (US Patent#5058141) and Muirhead (US2002/0030597).

Regarding claim 1, Ng teaches a communication method for a noncontact TF ID system (Fig. 1) comprising:

communicating a data sequence having a first waveform which corresponds to one of codes "0" or "1" and which has a length of time  $T$  (Logic '1' of Fig. 8);

communicating a data sequence having a second waveform which corresponds to one of codes "0" or "1" opposite to the first waveform and which has a length of time  $T$  (Logic '0' of Fig. 8); and

communicating a data sequence having a third waveform (logic 'SYN' of Fig. 8).

But, Ng does not expressly disclose the third waveform which corresponds to  $m$  ( $m$  is a natural number equal to or greater than 2) codes, that are the same as the codes of the second waveform and where the third waveform has a length of time  $mT$ , wherein the first waveform with 50% duty ratio is in a low level state at a starting point, is in a high level state at an end point and rises only at a position of  $T/2$ , the second waveform with 50% duty ratio is in a high level state at a starting point, is in a low level state at an end point and rises only at a position of  $T/2$ , and the third waveform with 50% duty ratio is in a high level state at a starting point, is in a low level state at an end point and rises only at a total of  $m$  positions of  $T/2+nT$  ( $n=0, \dots, m=1$ ).

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the waveform of Ng into the waveform as specified in this claim by one's design preference.

Kem et al. teach having eight consecutive logic zeros representing synchronization, which would have been obvious to one of ordinary skill in the art to recognize logic SYN of Ng as consecutive zeroes.

Muirhead teach RFID device may use different coding waveform algorithm to reduce data recovery errors, bandwidth problems, synchronization limitations, and other system design and const considerations (paragraph 0071)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the third waveform of Ng into the code succession representation taught by Kem et al. and Muirhead as specified in claim by one's design preference for representation in signal waveform coding.

Regarding claim 2, Ng, Kem et al., and Muirhead teach a communication method for a noncontact RF ID system as explained in response to claim 1 above.

Regarding claim 4, Ng, Kem et al., and Muirhead teach the limitation of claim 1.

Ng, Kem et al., and Muirhead do not expressly disclose in the case in which the state transition is rising, the first waveform is a waveform that maintains a low level in a negative time direction for  $T/2$  from the point in time that the waveform first rises, which is a center point of the waveform, and maintains a high level state for  $T/2$  in a positive time direction from this center point;

the second waveform is a waveform that maintains a high level state in the positive time direction for  $t1$  from a point in time that the waveform first rises, which is the center point of the waveform, maintains a low level state for time  $t2$  until an end point of the waveform, maintains a low level state in the negative time direction for time  $t1$  from the center point of the waveform,

and maintains a high level state for time  $t_2$  until a starting point of the waveform (here,  $t$  denotes time,  $T$  denotes one cycle of the first and second waveforms, and  $t_1 + t_2 = T/2$ ); and

the third waveform is a  $C(2n)$  waveform which, in the case in which  $m=2n$ , maintains a high level state in the positive time direction for  $t_6$  from the point in time that the waveform first rises; maintains a low level state in the negative time direction for  $t_3$  from the point in time that the waveform first rises; maintains a high level state for time  $t_4$  until the starting point of the waveform; maintains a high level state in the positive time direction for  $t(2(n-k)+6)$  from the point in time that the waveform rises for the  $(n+1-k)$ th time; maintains a low level state for  $t(2(n-k)+3)$  in the negative time direction from the point in time that the waveform rises for the  $(n+1-k)$ th time; maintains a high level state in the positive time direction for  $T/2$  from the point in time that the waveform rises for the  $n$ th time; maintains a low level state in the negative time direction for  $t(2(n-1)+3)$  from the point in time that the waveform rises for the  $n$ th time; maintains a high level state in the positive time direction for  $t(2(n-1)+3)$  from the point in time that the waveform rises for the  $(n+1)$ th time; maintains a low level state in the negative time direction for  $T/2$  from the point in time that the waveform rises for the  $(n+1)$ th time; maintains a high level state in the positive time direction for  $t(2(n-k)+3)$  from the point in time that the waveform rises for the  $(n+k)$ th time; maintains a low level state in the negative time direction for  $t(2(n-k)+6)$  from the point in time that the waveform rises for the  $(n+k)$ th time; maintains a low level state in the negative time direction for  $t_6$  from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for  $t_3$  from the point in time that the waveform rises the last time; and maintains a low level state for time  $t_4$  until an end point of the waveform, where  $n$  and  $k$  are natural numbers;  $n \geq k \geq 1$ ;  $t$  is

time;  $T$  is one cycle of the first and second waveforms; and  $t_3 + t_4 = T/2$ ;  $t(2(n - k) + 5) + t(2(n - k) + 6) = T$  (when  $n$  and  $k \geq 2$ ); and

in the case in which  $m = 2n + 1$ , the third waveform is a  $C(2n + 1)$  waveform that maintains a high level state in the positive time direction for  $t_6$  from the point in time that the waveform first rises; maintains a low level state in the negative time direction for  $t_3$  from the point in time that the waveform first rises; maintains a high level state for  $t_4$  from the starting point of the waveform; maintains a high level state in the positive time direction for  $t(2(n - k) + 6)$  from the point in time that the waveform rises for the  $(n + 1 - k)$ th time; maintains a low level state in the negative time direction for  $t(2(n - k) + 3)$  from the point in time that the waveform rises for the  $(n + 1 - k)$ th time; maintains a high level state in the positive time direction for  $t(2(n - 1) + 5)$  from the point in time that the waveform rises for the  $(n + 1) +$  time; maintains a low level state in the negative time direction for  $t(2(n - 1) + 5)$  from the point in time that the waveform rises for the  $(n + 1)$ th time; maintains a high level state in the positive time direction for  $t(2(n - k) + 3)$  from the point in time that the waveform rises for the  $(n + 1 + k)$ th time; maintains a low level state in the negative time direction for  $t(2(n - k) + 6)$  from the point in time that the waveform rises for the  $(n + 1 + k)$ th time; maintains a low level state in the negative time direction for  $t_6$  from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for time  $t_3$  from the point in time that the waveform rises the last time; and maintains a low level state for  $t_4$  until the end point of the waveform; (where  $n$  and  $k$  are natural numbers,  $n \geq k \geq 1$ ,  $t$  is time,  $T$  is one cycle of the first and second waveforms,  $t_3 + t_4 = T/2$ , and  $t(2(n - k) + 5) + t(2(n - k) + 6) = T$ ).

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However, Muirhead teaches different coding waveform algorithm may be used in RFID by design preference (paragraph 0071). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first waveform, the second waveform, and the third waveform of Ng, Kem et al., and Muirhead into as specified in this claim by design preference.

Regarding claim 5, Ng, Kem et al., and Muirhead teach the limitation of claim 1.

Ng, Kem et al., and Muirhead do not expressly disclose in the case in which the state transition is a falling state transition, the first waveform is an inverted waveform that maintains a low level in a negative time direction for  $T/2$  from the point in time that the waveform first rises, which is a center point of the waveform, and maintains a high level state for  $T/2$  in the positive time direction from this center point;

the second waveform is an inverted waveform that maintains a high level state in the positive time direction for  $t1$  from the point in time that the waveform first rises, which is the center point of the waveform, maintains a low level state for time  $t2$  until the end point of the waveform, maintains a low level state in the negative time direction for time  $t1$  from the center point of the waveform, and maintains a high level state for time  $t2$  until the starting point of the waveform (here,  $t$  denotes time,  $T$  denotes one cycle of the first and second waveforms, and  $t1 + t2 = T/2$ ); and

the third waveform is an inverted  $C(2n)$  waveform which, in the case in which  $m=2n$ , maintains a high level state in a positive time direction for  $t6$  from the point in time that the waveform first rises; maintains a low level state in the negative time direction for  $t3$  from the

point in time that the waveform first rises; maintains a high level state for time  $t_4$  until the starting point of the waveform; maintains a high level state in the positive time direction for  $t(2(n - k) + 6)$  from the point in time that the waveform rises for the  $(n + 1 - k)$ th time; maintains a low level state for  $t(2(n - k) + 3)$  in the negative time direction from the point in time that the waveform rises for the  $(n + 1 - k)$ th time; maintains a high level state in the positive time direction for  $T/2$  from the point in time that the waveform rises for the  $n$ th time; maintains a low level state in the negative time direction for  $t(2(n - 1) + 3)$  from the point in time that the waveform rises for the  $n$ th time; maintains a high level state in the positive time direction for  $t(2(n - 1) + 3)$  from the point in time that the waveform rises for the  $(n + 1)$ th time; maintains a low level state in the negative time direction for  $T/2$  from the point in time that the waveform rises for the  $(n + 1)$ th time; maintains a high level state in the positive time direction for  $t(2(n - k) + 3)$  from the point in time that the waveform rises for the  $(n + k)$ th time; maintains a low level state in the negative time direction for  $t(2(n - k) + 6)$  from the point in time that the waveform rises for the  $(n + k)$ th time; maintains a low level state in the negative time direction for  $t_6$  from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for  $t_3$  from the point in time that the waveform rises the last time; and maintains a low level state for time  $t_4$  until the end point of the waveform, where  $n$  and  $k$  are natural numbers',  $n \geq k \geq 1$ ;  $t$  is time;  $T$  is one cycle of the first and second waveforms; and  $t_3 + t_4 = T/2$ ;  $t(2(n - k) + 5) + t(2(n - k) + 6) = T$  (when  $n$  and  $k \geq 2$ ); and in the case in which  $m = 2n + 1$ , the third waveform is an inverted  $C(2n + 1)$  waveform that maintains a high level state in the positive time direction for  $t_6$  from the point in time that the waveform first rises; maintains a low level state in the negative time direction for  $t_3$  from the point in time that the waveform first

rises; maintains a high level state for  $t_4$  from the starting point of the waveform; maintains a high level state in the positive time direction for  $t(2(n - k) + 6)$  from the point in time that the waveform rises for the  $(n + 1 - k)$ th time; maintains a low level state in the negative time direction for  $t(2(n - k) + 3)$  from the point in time that the waveform rises for the  $(n + 1 - k)$ th time; maintains a high level state in the positive time direction for  $t(2(n - 1) + 5)$  from the point in time that the waveform rises for the  $(n + 1)$ th time; maintains a low level state in the negative time direction for  $t(2(n - 1) + 5)$  from the point in time that the waveform rises for the  $(n + 1)t_{11}$  time; maintains a high level state in the positive time direction for  $t(2(n - k) + 3)$  from the point in time that the waveform rises for the  $(n + 1 + k)$ th time; maintains a low level state in the negative time direction for  $t(2(n - k) + 6)$  from the point in time that the waveform rises for the  $(n + 1 + k)$ th time; maintains a low level state in the negative time direction for  $t_6$  from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for time  $t_3$  from the point in time that the waveform rises the last time; and maintains a low level state for  $t_4$  until the end point of the waveform; (where  $n$  and  $k$  are natural numbers,  $n \geq k \geq 1$ ,  $t$  is time,  $T$  is one cycle of the first and second waveforms,  $t_3 + t_4 = T/2$ , and  $t(2(n - k) + 5) + t(2(n - k) + 6) = T$ ).

However, Muirhead teaches different coding waveform algorithm may be used in RFID by design preference (paragraph 0071). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first waveform, the second waveform, and the third waveform of Ng, Kem et al., and Muirhead into as specified in this claim by design preference.

*Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHIYU LU whose telephone number is (571)272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Zhiyu Lu/  
Examiner, Art Unit 2618

/Z. L./  
Examiner, Art Unit 2618  
February 20, 2009

/Duc Nguyen/  
Supervisory Patent Examiner, Art Unit 2618